31. A method, comprising:

coupling a nondithered drive signal to a coil of a motor assembly to park a read-write head on a platform;

uncoupling the drive signal from the coil to allow a current flowing through the coil to decay to approximately zero;

sampling a back voltage across the coil while the approximately zero current is flowing through the coil;

adjusting the drive signal in response to the sampled back voltage; and

coupling the adjusted drive signal to the coil, the adjusted drive signal shifting the back voltage toward or maintaining the back voltage substantially at a predetermined level.

REMARKS

Claims 1 – 13 and 16 - 31 are pending. The Applicants have amended claims 1, 4, 8, 12, 19, 23 - 24, and 27, and have added new claims 30 - 31.

Rejection of Claims 1-11 and 27-29 Under 35 U.S.C. § 102(e) In View of U.S. Patent 6,204,629 to Rote et al.

As discussed below, the Applicants respectfully disagree with this rejection.

Claims 1 - 3

Claim 1 as amended recites a sensor circuit operable to be coupled directly across a coil.

For example, referring, *e.g.,* to FIG. 3 of the patent application, the inputs of the amplifier circuit 82 are coupled directly across the coil 56.

Conversely, referring, *e.g.*, to FIG. 1, the inputs of Rote's amplifier 106 are coupled across the series combination of the coil 26 and the sense resistor Rsense.

Claims 4 – 7

Claim 4 as amended recites a drive circuit operable to drive a coil such that a read-write head moves to or from a ramped parking platform.

For example, referring, *e.g.,* to FIGS. 1B – 3 of the patent application, a drive circuit 36 drives a coil 56 such that a head 16 moves to or from a ramped parking platform 14.

Conversely, referring, *e.g.*, to FIG. 1 and column 1 lines 25-31, Rote does not disclose moving the head 32 to or from a ramped parking platform.

Claims 8 – 11

Claim 8 as amended is patentable for reasons similar to those discussed above in support of the patentability of claim 1.

Claims 27 – 29

Claim 27 as amended is patentable for reasons similar to those discussed above in support of the patentability of claim 4.

Rejection of Claims 12 – 26 Under 35 U.S.C. § 103(a) As Being Unpatentable Over Rote In View of U.S. Patent 6,154,340 to Cameron

As discussed below, the Applicants respectfully disagree with this rejection.

Claims 12 – 13 and 17 – 18

Claim 12 as amended recites a nondithering control circuit operable to cause a coil to park a read-write head by moving the read-write head from over the disk onto a platform that is raised with respect to the surface of the disk.

For example, referring, *e.g.,* to FIGS. 1B – 3 of the patent application, a nondithering control circuit 32 causes a coil 56 to park a read-write head 16 by moving the head from over a disk 12 onto a platform 14 that is raised with respect to the surface of the disk.

Conversely, one would not be motivated to combine Rote and Cameron to obtain a nondithering control circuit operable to park a head on a raised platform because

Cameron actually teaches away from this. Referring, *e.g.*, to FIG. 1 and column 1 lines 25-31, Rote does not disclose or suggest moving the head 32 to or from a raised parking platform. Referring to column 4, line 4 – column 5 line 38, Cameron states that circuits similar to Rote's circuit are unsuitable for parking a head on a platform because they cannot move the head slowly enough (column 5, lines 35 – 38). Referring to FIGS. 8a-8c and column 5, line 39 – column 7, line 49, Cameron goes on to state that one way that a circuit can move the head slowly enough is to drive the head with a sinusoid that dithers the head back and forth, thus effectively eliminating friction between the head and the platform. Consequently, given Cameron's negative statements about using Rote's nondithering circuit for parking a head on a platform, one would not be motivated to use Rote's circuit for such a task. In fact, one would be motivated to search for a circuit other than Rote's circuit.

Claims 16

Claim 16 recites that the head moves at a constant speed of five inches per second. In addition to being patentable by virtue of its dependency on claim 12, one would not be motivated to combine Rote and Cameron to obtain the subject matter recited in claim 16. As discussed above in support of claim 12, Rote does not disclose or suggest moving a head at any particular velocity, and Cameron states that a Rote-type circuit moves the head too fast (at least 10 inches per second, column 5, line 36) for parking the head on a platform. Consequently, Cameron would not motivate one to use Rote's circuit to move a head at a velocity less than 10 inches per second, and actually teaches away from this.

Claims 19 - 26

Claim 19 as amended is patentable for reasons similar to those discussed above in support of the patentability of claim 1.

CONCLUSION

In light of the foregoing, claims 2-3, 5-7, 9-11, 13, 16-18, 20-22, 25-26, and 28-29 as previously pending, claims 1, 4, 8, 12, 19, 23-24, and 27 as amended, and new claims 30-31 are in condition for allowance, and that action is requested.

In the event additional fees are due as a result of this amendment, payment for those fees has been enclosed in the form of a check. Should further payment be required to cover such fees you are hereby authorized to charge such payment to Deposit Account No. 07-1897.

If the Examiner believes that a phone interview would be helpful, he is respectfully requested to contact the Applicants' attorney, Bryan Santarelli, at (425) 455-5575.

DATED this 27th day of November, 2002.

Respectfully submitted,

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ALL PENDING CLAIMS INCLUDING MARKED UP VERSION OF AMENDED CLAIMS

1. (Amended) A control circuit for controlling a motor assembly having a coil and a movable arm, the control circuit comprising:

a drive circuit operable to be coupled to the coil, to receive a control signal and a speed signal, to generate a drive signal in response to the control and speed signals, and to drive the coil with the drive signal; and

a sensor circuit coupled to the drive circuit and operable to be coupled directly across ~~to~~ the coil and to generate the speed signal having a level that corresponds to the speed of the arm.

2. The control circuit of claim 1 wherein the sensor circuit is operable to generate the speed signal by sensing a back voltage across the coil during a time period when substantially zero current is flowing through the coil and by generating the level of the speed signal such that the level corresponds to the sensed back voltage.

3. The control circuit of claim 1 wherein the drive circuit is operable to accelerate the arm to a predetermined speed and to maintain the arm at approximately the predetermined speed for a predetermined time period.

4. (Amended) A control circuit for controlling a read-write head assembly during a park or unpark operation, the head assembly ~~that~~ includinges a motor assembly having a coil and a movable arm, the head assembly also including a read-write head coupled to the arm, the control circuit comprising:

a drive circuit operable to receive a control signal and a speed signal and to drive the coil in response to the control and speed signals such that the read-write head moves to or from a ramped parking platform at a speed that is less than~~approximately~~ ten inches per second ~~a predetermined speed~~ for a predetermined time period; and

a sensor circuit coupled to the drive circuit and operable to sense the speed of the read-write head and to generate the speed signal having a level that corresponds to the sensed speed of the read-write head.

5. The control circuit of claim 4 wherein the drive circuit is operable to drive the coil in response to the sum of the control and speed signals.

6. The control circuit of claim 4 wherein the sensor circuit is operable to sense the speed of the read-write head by sensing a back voltage across the coil during a time period when approximately zero current is flowing through the coil.

7. The control circuit of claim 4 wherein the sensor circuit is operable to:

sense the speed of the read-write head by sensing a back voltage across the coil; and

generate the speed signal by generating an intermediate signal from the sensed back voltage, sampling the intermediate signal during a time period when substantially zero current is flowing through the coil, and generating the level of the speed signal such that the level corresponds to the sampled intermediate signal.

8. (Amended) A control circuit for controlling a read-write head assembly that includes a motor assembly having a post, an arm having first and second ends and a midsection pivotally mounted to the post, and a coil operable to move the first end of the arm, the read-write head assembly also including a read-write head coupled to the second end of the arm, the control circuit comprising:

a drive circuit having a control input terminal, a feedback input terminal, and a first output terminal that is operable to be coupled to a first terminal of the coil; and

a speed-sense circuit having ~~a~~ first and second input terminals that are~~is~~ operable to be directly coupled to the first terminal and a second terminal of the coil and having an output terminal coupled to the feedback input terminal of the drive circuit.

9. The control circuit of claim 8 wherein the control and feedback input terminals are coupled together.

10. The control circuit of claim 8, further comprising a switch coupled between the feedback input terminal and the output terminal of the of the speed-sense circuit.

11. The control circuit of claim 8 wherein:

the drive circuit comprises a second output terminal operable to be coupled to a second terminal of the coil; and

the speed-sense circuit comprises a second input terminal operable to be coupled to the second terminal of the coil.

12. (Amended) A disk-drive system, comprising:

a disk having a peripheral edge and a surface;

a platform disposed adjacent to the peripheral edge of the disk and raised with respect to the disk surface;

a coil;

an arm;

a read-write head coupled to the arm; and

a nondithering control circuit coupled to the coil and operable to cause the coil to park the read-write head by moving the read-write head from over the disk onto the platform~~move the arm such that the read-write head moves~~ at approximately a constant speed.

13. The disk-drive system of claim 12 wherein the platform has a ramped side that faces the disk.

14. Cancelled.

15. Cancelled.

16. The disk-drive system of claim 12 wherein the constant speed equals five inches per second.

17. The disk-drive system of claim 12, further comprising:

a post;

the arm having a first end magnetically coupled to the coil, having a second end, and having a midsection pivotally mounted to the post; and

the read-write head coupled to the second end of the arm

18. The disk-drive system of claim 12, further comprising:

a post;

the arm having first and second ends and having a midsection pivotally mounted to the post;

the coil mounted to the first end of the arm; and

the read-write head coupled to the second end of the arm

19. (Amended) A method, comprising:

accelerating a read-write head to approximately a predetermined speed using a head-motor coil;

directly monitoring a back voltage across the coil; and

when or after the head attains the predetermined speed, maintaining the speed of the head at approximately the predetermined speed in response to the back voltage.

20. The method of claim 19 wherein the accelerating comprises accelerating the read-write head from a position over a disk toward a parking platform.

21. The method of claim 19 wherein the accelerating comprises accelerating the read-write head from a position on a parking platform toward a disk.

22. The method of claim 19 wherein the maintaining comprises periodically monitoring the speed of the read-write head.

23. (Amended) The method of claim 19 wherein the monitoring~~aintaining~~ comprises directly monitoring the ~~a~~ back voltage ~~across a head-motor coil~~ during periods of approximately zero current flow through the coil.

24. (Amended) The method of claim 19 wherein the maintaining comprises maintaining the speed of the head at approximately the predetermined speed approximately until the head is on a parking surface of a parking platform.

25. The method of claim 19 wherein the maintaining comprises maintaining the speed of the head approximately at or below the predetermined speed until the head moves to a position over a disk from a parking surface of a parking platform.

26. The method of claim 19 wherein the maintaining comprises periodically updating a drive signal to thea head-motor coil.

27. (Amended) A method, comprising:

coupling a nondithered drive signal to a coil of a motor assembly to park a read-write head on a ramped platform;

uncoupling the drive signal from the coil to allow a current flowing through the coil to decay to approximately zero;

sampling a back voltage across the coil while the approximately zero current is flowing through the coil;

adjusting the drive signal in response to the sampled back voltage; and

coupling the adjusted drive signal to the coil, the adjusted drive signal shifting the back voltage toward or maintaining the back voltage substantially at a predetermined level.

28. The method of claim 27 wherein the sampling comprises:

determining when the current through the coil approximately equals or is less than a predetermined value; and

waiting a predetermined time after the step of determining before sampling the back voltage.

29. The method of claim 25 wherein:

the sampling comprises,

generating an intermediate signal that corresponds to the back voltage,

sampling the intermediate signal while the approximately zero current is flowing through the coil, and

the adjusting comprises,

generating a sum of the sampled intermediate signal and a control signal, and

generating the drive signal corresponding to the sum.

30. A disk-drive system, comprising:

a disk having a peripheral edge and a surface;

a platform disposed adjacent to the peripheral edge of the disk and raised with respect to the disk surface;

a coil;

an arm;

a read-write head coupled to the arm; and

a nondithering control circuit coupled to the coil and operable to cause the coil to unpark the read-write head by moving the read-write head from the platform to a position over the disk at approximately a constant speed.

31. A method, comprising:

coupling a nondithered drive signal to a coil of a motor assembly to park a read-write head on a platform;

uncoupling the drive signal from the coil to allow a current flowing through the coil to decay to approximately zero;

sampling a back voltage across the coil while the approximately zero current is flowing through the coil;

adjusting the drive signal in response to the sampled back voltage; and

coupling the adjusted drive signal to the coil, the adjusted drive signal shifting the back voltage toward or maintaining the back voltage substantially at a predetermined level.